

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before the Board of Patent Appeals and Interferences

Application Serial No. 08/899,434

Filed: July 24, 1997

**AN APPARATUS FOR APPLYING TAPE
WITH FASTENER PROFILES TO A WEB (as amended)**

Originally entitled
**FASTENER TAPE MATERIAL,
BAG UTILIZING FASTENER TAPE MATERIAL,
AND METHOD OF MANUFACTURE THEREOF**

Ex parte: James R. Johnson

BRIEF FOR THE APPELLANT

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I. REAL PARTY IN INTEREST

The real party in interest is assignee Illinois Tool Works Inc.

II. RELATED APPEALS AND INTERFERENCES

None. However, there are many divisional applications related to the present application.

III. STATUS OF CLAIMS

Claims 1, 2, 3, 8 and 12 have been rejected under 35 U.S.C. §103(a), to wit:

Claims 1 and 8 have been rejected under 35 U.S.C. §103(a) as obvious over the Bodolay reference (U.S. Patent No. 5,776,045) in view of the Kanemitsu reference (U.S. Patent No. 5,400,568) and the Schroth reference (U.S. Patent No. 4,608,115).

Claim 2 has been rejected under 35 U.S.C. §103(a) as obvious over the Bodolay reference in view of the Kanemitsu and Schroth references as applied to Claims 1 and 8, and further in view of the Rajala reference (U.S. Patent No. 5,659,229).

Claim 3 has been rejected under 35 U.S.C. §103(a) as obvious over the Bodolay reference in view of the Kanemitsu and Schroth references as applied to Claims 1 and 8 above, and further in view of the Martin reference (U.S. Patent No. 3,659,767).

Claim 12 has been rejected under 35 U.S.C. §103(a) as obvious over the Bodolay reference in view of the Kanemitsu and Schroth references as applied to Claims 1 and 8, and further in view of the Kühnhold reference (U.S. Patent No. 5,413,656).

Claim 8 has been rejected under 35 U.S.C. §103(a) as obvious over the Bodolay reference in view of the Bois reference (U.S. Patent No. 5,884,452) and the Schroth reference.

Claim 12 has been rejected under 35 U.S.C. §103(a) as obvious over the Bodolay reference in view of the Bois and Schroth references as applied to Claim 8, and further in view of the Kühnhold reference.

Claims 9-11 and 13-15 have been allowed.

Claims 4-7 and 16-82 have been canceled in this application.

IV. STATUS OF AMENDMENTS

A final Office Action was dated March 2, 2000. An amendment dated September 5, 2000 was filed in response thereto.

An Advisory Action dated September 22, 2000 withdrew rejections under 35 U.S.C. §112, second paragraph, but apparently maintained the rejections under 35 U.S.C. §103.

V. SUMMARY OF INVENTION

The present invention is an apparatus for dispensing, applying, and sealing individual sections of thermoplastic tape having one or more fastener profiles thereto. It is envisioned that the apparatus would be implemented as or in conjunction with a form fill and seal apparatus.

While there are many aspects of the present invention, the aspect of the claims of the present application relate particularly to a vacuum belt means for advancing a section of tape and fastener profile into position across a web of thermoplastic material, a tape sealing mechanism for applying pressure and heat to the tape section for a specified dwell time; and means for sequentially advancing the tape. Additionally, the present invention relates to the tensioning of the fastener tape materials. This tensioning of the tape provides for precise locating and sealing since the sealing mechanism needs to be precisely and consistently located relative to a predetermined section of the tape.

VI. ISSUES

Are Claims 1 and 8 patentable under 35 U.S.C. §103(a) as unobvious over the Bodolay reference in view of the Kanemitsu reference and the Schroth reference?

Is Claim 2 patentable under 35 U.S.C. §103(a) as unobvious over the Bodolay reference in view of the Kanemitsu and Schroth references as applied to Claims 1 and 8, and further in view of the Rajala reference?

Is Claim 3 patentable under 35 U.S.C. §103(a) as unobvious over the Bodolay reference in view of the Kanemitsu and Schroth references as applied to Claims 1 and 8 above, and further in view of the Martin reference?

Is Claim 12 patentable under 35 U.S.C. §103(a) as unobvious over the Bodolay reference in view of the Kanemitsu and Schroth references as applied to Claims 1 and 8, and further in view of the Kühnhold reference?

Is Claim 8 patentable under 35 U.S.C. §103(a) as obvious over the Bodolay reference in view of the Bois reference and the Schroth reference?

Is Claim 12 patentable under 35 U.S.C. §103(a) as obvious over the Bodolay reference in view of the Bois and Schroth references as applied to Claim 8, and further in view of the Kühnhold reference.

VII. GROUPING OF CLAIMS

The claims are deemed to stand or fall together for each ground of rejection.

VIII. ARGUMENT

Page 18, second paragraph, tension. Page 30-31, bridging paragraph.

At the outset, the disclosure and particularly the claims of the present application relate to the tensioning of the tape in order to provide a precise location and sealing of the tape because the sealing mechanism needs to be precisely and consistently located relative to a predetermined section of the tape (for example, totally sealed, not crushing the profile, etc.). This is supported by the paragraph bridging pages 28 and 29 and page 30, line 2 through page 32, line 12 (see particularly, page 30, lines 12-14 regarding the vacuum belt maintaining "tight control of segment 2047"). In other words, the tension of the tape is maintained during sealing. This responds to the Advisory Action of September 22, 2000 stating that "there appears to be no significant relationship between the tensioner and the sealing mechanism".

It is respectfully submitted that the claimed tensioning is non-obvious over all of the cited references (Claims 1 and 8 over Bodolay in view of Kanemitsu and Schroth; Claim 2 over

Bodolay in view of Kanemitsu and Schroth and further in view of Rajala; Claim 3 over Bodolay in view of Kanemitsu and Schroth and further in view of Martin; Claim 12 over Bodolay in view of Kanemitsu and Schroth and further in view of Kühnhold; Claim 8 over Bodolay in view of Bois and Schroth; and Claim 12 over Bodolay in view of Bois and Schroth and further in view of Kühnhold) and that all of the present claims are in immediate condition for allowance.

In view of the above, it is respectfully submitted that the pending claims are patentably distinct from the art of record.

The Board is respectfully requested to find all of the presently pending claims to be allowable.

Respectfully submitted,



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IX. APPENDIX OF PRESENTLY PENDING CLAIMS

1. An apparatus for dispensing, applying, and sealing individual sections of thermoplastic tape having one or more fastener profiles thereto, said tape being sealed across a portion of a web of thermoplastic material, said apparatus comprising: means for dispensing said tape and fastener profile; a tape applicator apparatus; means for delivering tensioned tape and fastener profile from said tape dispensing means, said means for delivering comprising a tape registration assembly for adjusting the position of said tape and fastener profile and a tape drive assembly for advancing said tape and fastener profile; a tape cutter assembly for cutting said tape and fastener profile into individual sections of a preselected length; vacuum belt means for advancing said section of tape and fastener profile into a position across said web of thermoplastic material; a tape sealing mechanism for applying pressure and heat to said tape section on said web for a specified dwell time; and means for sequentially advancing said web.

2. The apparatus of Claim 1 wherein said means for dispensing said tape comprises; a roll of said tape pivotally mounted on a powered unwind reel; a tension arm having said tape wound thereon, said tension arm being slidably mounted so as to rise or descent in response to tension on said tape; and means for controlling rotation speed of said unwind reel in response to said rising or descent of said tension arm.

3. The apparatus of Claim 1 wherein said means for delivering tensioned tape comprises; a plurality of dancer rollers thereon, the position of said dancer rollers indicating tension on said tape; film synchronizer means for synchronizing said tape with said tape applicator apparatus, said film synchronizer means having one or more vertically adjustable rollers therein, said vertically adjustable roller being adjustable in response to tension on said tape disposed through said vertically adjustable; said tape registration assembly, and a nip drive assembly for feeding said tape in response to the position of said rollers in said film synchronizer means and the position of said dancer rollers.

8. The apparatus of Claim 1 further comprising: means for ultrasonically sealing said tape transversely prior to cutting of said tape, positioned between said means for dispensing said tape and said tape applicator.

9. (allowed) An apparatus for dispensing, applying, and sealing individual sections of thermoplastic tape having one or more fastener profiles thereto, said tape being sealed across a portion of a web of thermoplastic material, said apparatus comprising: means for dispensing said tape and fastener profile; a tape applicator apparatus; means for delivering tensioned tape and fastener profile from said tape dispensing means, said means for delivering comprising a tape registration assembly for adjusting the position of said tape and fastener profile and a tape drive assembly for advancing said tape and fastener profile; a tape cutter assembly for cutting said tape and fastener profile into individual sections of a preselected length; vacuum belt means for advancing said section of tape and fastener profile into a position across said web of thermoplastic material; a tape sealing mechanism for applying pressure and heat to said tape section on said web for a specified dwell time; and means for sequentially advancing said web;

wherein said vacuum belt means, said tape registration assembly and said tape cutter assembly are interconnected by a belt drive constructed and arranged for maintaining the relative speed of operation of said vacuum belt means, said tape cutter assembly and nip rollers, and for retaining the position of said tape and said tape segment during operation of said apparatus.

10. (allowed) The apparatus of Claim 9 wherein said belt drive is powered by a single motor so as to provide constant speed and tension.

11. (allowed) The apparatus of Claim 9 wherein said tape drive assembly comprises: a double hub, having a first hub and a second hub, said first hub being connected by a toothed belt to a third hub on said drive motor, said third hub being mounted on a first shaft powered by said drive motor so as to rotate said third hub thereby causing said double hub to rotate; said double hub being mounted on an end of one of said nip rollers so as to cause rotation of said nip roller when said double hub is rotated; said vacuum belt means having a drive shaft extending through one end thereof and a fourth hub extending from said drive shaft, said fourth hub having a toothed drive belt disposed thereon; said toothed drive belt being connected to first said hub so as to cause said fourth hub and said drive

shaft to rotate when said first hub rotates thereby driving said vacuum belt means in synchronization with said cutter assembly and said nip rollers.

12. (allowed) The apparatus of Claim 1, wherein said tape cutter assembly comprises: an air piston mechanism having a shaft extending downwardly therefrom, said air piston being constructed and arranged to selectively raise and lower said shaft; a cutter blade and clamp affixed to the distal end of said shaft for clamping and cutting of said tape; a slidable die plate for selectively being positioned under said tape, said die plate having a slot extending therethrough and a spring loaded stripper block proximate said slot; said clamp being constructed and arranged for pushing down said stripper block when said shaft is lowered so as to facilitate cutting of said tape; said stripper block being constructed and arranged to press upwardly when said clamp is pulled upwardly by said shaft, said stripper block being constructed and arranged to push the distal end of said tape towards said vacuum belt means.

13. (allowed) An apparatus for dispensing, applying, and sealing individual sections of thermoplastic tape having one or more fastener profiles thereto, said tape being sealed across a portion of a web of thermoplastic material, said apparatus comprising: means for dispensing said tape and fastener profile; a tape applicator apparatus; means for delivering tensioned tape and fastener profile from said tape dispensing means, said means for delivering comprising a tape registration assembly for adjusting the position of said tape and fastener profile and a tape drive assembly for advancing said tape and fastener profile; a tape cutter assembly for cutting said tape and fastener profile into individual sections of a preselected length; vacuum belt means for advancing said section of tape and fastener profile into a position across said web of thermoplastic material; a tape sealing mechanism for applying pressure and heat to said tape section on said web for a specified dwell time; and means for sequentially advancing said web;

wherein said vacuum belt means comprises; a vacuum belt having a plurality of holes extending therethrough; said vacuum belt being rotatably mounted on a pair of rollers; at least one of said rollers being powered so as to selectively cause rotation of said belt, and incremental advancement of said belt a distance; a ledge extending below said belt constructed of a

thermoplastic elastomer and sized and positioned so as to serve as a barrier to air from said web moving thereunder, and as an eliminator of static electricity.

14. (allowed) The apparatus of Claim 13 wherein said vacuum belt is approximately one inch wide and said holes are centered 5/8" from the edge of said belt.

15. (allowed) The apparatus of Claim 1 wherein said tape comprises a folded loop having a pair of interlocked fastener profilers attached thereto on the inside surface thereof.